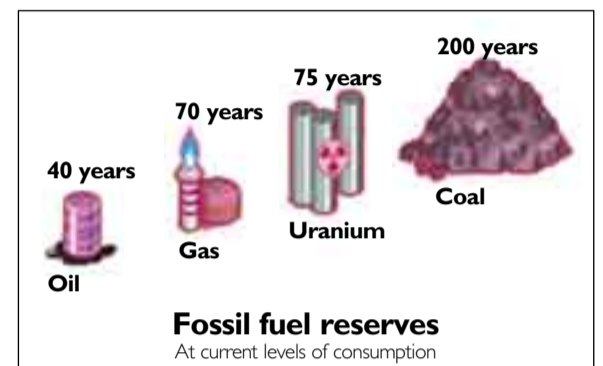


TRANSAIR: Active energy efficiency for air networks

Today, industry is under increasing pressure from ecological, economic and regulatory constraints. Controlled consumption of electric energy and fuel, along with reduced emissions being two of its main goals. **The use of clean and efficient technologies now plays a key role in guaranteeing the long-term future of all businesses.**



LEGRIS TRANSAIR PROVIDES INDUSTRIAL MANUFACTURERS WITH A CLEAN AND EFFICIENT SOLUTION FOR COMPRESSED AIR DISTRIBUTION.

Energy accounts for a significant share of production costs. Produced by electric compressors, compressed air can represent up to 15% of a company's energy costs. But compressed air, which is known to be a non-polluting energy source, is often the least well controlled and maintained energy system in the company.

An efficient compressed air system can make savings of up to 60%*. In terms of compressed air production, the leading compressor manufacturers have already adopted a positive approach by offering more efficient machines that consume less electricity. But a lot of progress can still be made in the distribution of compressed air to the point of use. Traditional pipes made of steel or plastic that are still in use are a poor solution when it comes to energy efficiency, as they cause significant pressure loss and leaks.

With Transair, Legris provides industrial manufacturers with a clean and efficient solution for compressed



air distribution, from the compressor to the point of use. The Transair system offers better performance than any conventional system. Transair aluminium pipe is perfectly smooth, unlike galvanised steel pipe, whose interior surface tends to deteriorate over time due to corrosion. In many cases, this electrolytic phenomenon can also lead to the formation of holes, resulting in numerous leaks. TRANSAIR also features quick-fit connectors that guarantee a

perfect seal and prevent the leaks that often occur through threads and welds, remaining tight under mechanical stress. Finally, unlike steel or plastic pipes, which are increasingly subject to leaks caused by expansion and contraction, TRANSAIR offers unmatched performance that remains constant over time.

In addition to providing high-performance pipework, LEGRIS TRANSAIR now also offers new energy efficiency software designed to calculate the overall savings provided by use of a Transair system in comparison with systems constructed in conventional materials. With the new TRANSAIR ENERGY EFFICIENCY CALCULATOR software, industrial manufacturers can immediately calculate

*Source: ADEME (Agence De l'Environnement et de la Maîtrise des Energies, French environmental and energy management agency)

Compressed air can represent up to **15%** of energy costs *

30%
The average potential savings made in terms of compressed air*, 16% of which is made by reducing air leaks

A 1 mm leak costs between €300 and €1,000 a year *

Solutions to reduce air consumption

- change the compressors' air production system (multi-pressure, variable speed, etc.)
- reduce the biggest air leaks on supply lines and production machines

Benefits of Transair to ACTIVELY combat pressure loss and leaks

<p>Aluminium pipe Corrosion-free > Unmatched quality over time Smooth material > Improved flows</p> <p>Connectors Full cross-section design > Optimal fluid flow Perfect sealing > Energy savings</p>	<p>Other benefits of the Transair solution</p> <ul style="list-style-type: none"> • Quick and easy to install • Re-usable • 10-year warranty • International certification
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the potential savings offered by the Transair solution. The TRANSAIR ENERGY EFFICIENCY CALCULATOR software



determines the savings and the ROI timeframe using compressor data, such as the pressure, power or throughput, the number of annual service hours, the

type of dryer, plus data from the network, such as the length of the main circuit, the type of open or closed circuit, the pipe material used and the local cost of electricity, including an inflation factor. The results speak for themselves and

demonstrate that Transair is the most efficient solution and the best option in the long term.

Whether you are extending or renovating an existing system or installing a new one, you can contribute to your company's performance and help to protect the environment by opting for Transair.



FORD chooses TRANSAIR for major new compressed air pipework system

Ford have selected Legris' Transair rapid-fit pipework system for the vital task of conveying compressed air to the 3000 machining operations on its latest engine production line at Dagenham in Essex.

The Dagenham plant is Ford's sole diesel engine manufacturing facility in Europe and produces engines for vehicles ranging from Transit vans to luxury S-type Jaguars.

Compressed air is fundamental to the entire process, clamping tools and transferring a rough casting through a myriad of automated drilling,

machining and clean area operations until it emerges as a finished engine.

The company's newest production facility is the result of a £350m investment which will provide a production capacity of 575,000 1.4 L and 1.6 L engines.



FORD selection criteria - cost savings and reduced installation time

With a requirement to supply compressed air across the whole of the 33,000 sq metre production area, Ford's three criteria for a pipework system were for greater operating efficiency than on previous lines, maximum cost saving and fastest installation times.



Conventional galvanised steel had been used on the company's other production lines but was ruled out because of the length of time required to install and make modifications when needed.

Based on previous experience, plastic too was dismissed because of the expense of so many supports and the need for frequent replacement through cracking.

Even rubber hose was considered, but quickly ruled out on the basis of the number of supports required and - despite being in a production environment - its lack of aesthetic appeal.

TRANSAIR, the most practical and rapid system



Ford had previously had experience of Legris' Transair pipework system used for compressed air on the transfer machines supplied by Lamb Technicon to its Lion V6 engine machining production line.

The rapid-fit system is used as standard by Lamb Technicon as the fastest and most convenient way for the company to run up and test a complete engine production plant at its own premises, then break it down, ship to anywhere in the world and reassemble it at point of use.

Based on that experience, and as part of its policy of "simultaneous engineering", Ford worked in partnership with Legris' Transair distributor Airchannel and the main mechanical installation contractors JSMS of Erith, Kent, to develop a system for delivering compressed air to the new line.

Just nine months were allowed to remove the previous engine production facilities in the area, completely refurbish that part of the building and install the new diesel production facilities.

The result has been a 200mm galvanised steel ring main and sub ring main in ladder format, dropping entirely to Transair in lightweight aluminium with its "instant" connection technology.

Because of the range of sizes available, the Transair installation could be tailored precisely to the needs of each installation, with 40mm pipework used as a header across banks of machines, dropping to 25mm and 16.5mm diameter according to the flow requirement. The system operates at 6 bar.

Installation time reduced to 72 hours

Transair's rapid-fit technology was to prove itself as much to the 30-strong pipework installation team as it was to Ford. Well used to working with galvanised steel at the plant, where the time from initial request to installation was up to eight days, installation times were now reduced to 72 hours, and with modifications now made in a fraction of the time previously needed.

Legris was able to supply all sizes of Transair pipework in six metre lengths instead of the usual three metres, substantially reducing the need for couplings. Legris was also able to supply the Transair aluminium pipework in white powder coated finish instead of its standard blue, for use in the cleanroom standard final engine assembly building.

Immediate savings

In addition to its far higher energy efficiency in use, the lightweight nature of Transair was also to provide a further instantly recognisable saving over galvanised steel at Ford.

One-inch diameter service drops in galvanised steel used on its Lion engine production line had been taken to the floor and anchored for rigidity, although the supply to each machine was typically at around one metre off the ground.

Because 16.5mm Transair offered the same flow characteristics but without the weight, it could be terminated simply on a wall bracket connected at the appropriate level to each machine. Based on the 550 service drops, the saving over galvanised steel in labour and materials for this part of the project alone was significant

A further benefit develop during the SE partnership with Transair, both aesthetically and financially, has been the ability to form the pipework into position from the 40mm headers to individual machines, eliminating the need for numerous additional elbows and reducing costs for components and further installation time.



TRANSAIR ENERGY EFFICIENCY CALCULATOR

Use the new **TRANSAIR ENERGY EFFICIENCY CALCULATOR** from **LEGRIS TRANSAIR** to quickly calculate the return on investment offered by the **TRANSAIR** solution, in terms of lifetime payback savings.

The brand new **TRANSAIR ENERGY EFFICIENCY CALCULATOR** software is designed to confirm the volume of air wasted due to leaks and pressure losses in compressed air networks and to estimate the associated annual costs.

This new tool from **LEGRIS TRANSAIR** has been specially developed to give decision-makers an early indication of the savings that they can make by opting for **TRANSAIR**

rather than using a conventional solution. The software was designed in partnership with internationally renowned organizations and experts (*). Special care was taken with verification and processing of the source data in order to guarantee the results.

To quickly understand the potential savings offered by the TRANSAIR system, contact a TRANSAIR specialist who will take care of your request.

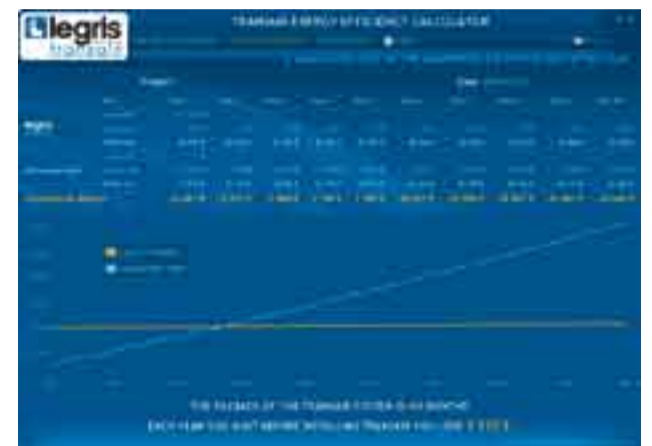
For new building projects, the potential gains are calculated on the basis of the system characteristics:

- pressure
- power (or throughput)
- number of annual service hours
- type of dryer
- length of the main circuit
- open or closed circuit
- diameter of the main circuit

and the amount of the estimated cost of a traditional system. The results include the potential savings and the estimated time required to reap a return on investment.

When it comes to renovation projects, you only need to provide the leakage rate or the age of the network (used to estimate the leakage rate) and the cost of electricity per kWh.

The **TRANSAIR EFFICIENCY CALCULATOR** can also vary the duration and show the savings for the requested period.



Along with the TRANSAIR FLOW CALCULATOR and the TRANSAIR DESIGN SOFTWARE, the TRANSAIR ENERGY EFFICIENCY CALCULATOR provides valuable help in choosing the best compressed air system.

For more information, contact your nearest Transair specialist: www.transair.legris.com



(*)

- AIR COMPRIME ENERGIE, Surveys and consulting services in energy management (specialised in energy efficiency in industry – expert consultant for the European Union)

- ADEME (Agence De l'Environnement et de la Maîtrise des Energies, French environmental and energy management agency)

- European "SAVE" programme report: "Compressed Air Systems in the European Union", by ADEME (France), Fraunhofer ISI (Germany), DoE (Italy), ECE (Netherlands) and PNEUROPE (European trade association). Published in 2001 by LOG_X, Stuttgart.

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